2012 UNH/DES Pollution Prevention Internship

NHDES- Pollution Prevention Program – ***Christian Zapata***, As the intern for NHPPP, Christian contributed to an ongoing grant based project assisting concrete facilities with compliance to various NHDES and EPA regulations. He also had the opportunity to work with Whelen Engineering in Charlestown, NH. Christian utilized his chemical engineering degree to research a less toxic substitute to the methylene chloride used in a process to bond polycarbonate plastics at Whelen Engineering.

- When all of the testing is complete and this chemical substitution meets all requirements, Whelen Engineering will save up to $30,000 annually in safety testing and eliminate the use of approximately 5 gallons of 100% concentration methylene chloride per year.

Freudenberg NOK- Bristol, NH –
Freudenberg-NOK manufactures rubber products for various industries including the automotive industry. This facility is a long time participant in the P2 internship program. This year they employed two interns to work on various projects.

-***Thalia Valkanos*** was tasked with conducting research and a feasibility study for a geothermal heating/cooling system for installation at the Bristol facility. She developed a heating/cooling load plan on the appropriate building areas to determine thermal requirements the proposed geothermal system would need to meet. This project required financial analysis and projections to assist in the planning for this new system. In addition, Thalia crafted a sustainability policy to be integrated into Freudenberg's corporate guiding principles. Her efforts were focused on improving the overall sustainability of Bristol, NH facility.

- Once this Geothermal system is installed, Freudenberg will save $110,000 and 33,000 gallons of oil annually.

-***Ryan Huard's*** objective at Freudenberg-NOK was to focus on reducing waste generation and plant operation costs to meet a Freudenberg-NOK corporate mandate of zero waste generation. He investigated, analyzed and mapped hazardous and non-hazardous waste streams generated by the facility. Ryan's efforts to decrease the quantity of managed waste at this facility included an investigation of several projects. Ryan made simple alterations to an existing evaporator which removed more water from the residue and resulted in a waste reduction of 27%. Ryan researched a floor wash-water filtration system that will reduce 20 drums of regulated waste per year and reduce soap usage by 8 drums per year. Using Lean and Kaizen 5S (sort, stabilize, sweeping or shining, standardizing, and sustaining) methods, Ryan adjusted the plumbing on a phosphate tank and modified its use in the process to improve its efficiency, cut costs, and improve safety. Lastly, Ryan performed a financial feasibility study on a solvent recovery system to recycle solvents used in the manufacturing process. If implemented, this system would be used to recycle solvents used in the manufacturing process thereby reducing the disposal of used solvents.

- The end result is $15,400 in annual savings from the floor water filtration machine.
- Evaporator modification: $6,000 per year savings.
- Pipe retrofit on phosphate tank will save approximately $2,300 a year for the cost of labor and increase safety for employees.

Turbocam - Barrington, NH – ***Bill Oedel***
Turbocam is a multinational company that manufactures parts for aerospace, automotive, energy, marine, compressor, and other industries. Bill was tasked with reducing the volume of waste oil/water sent to waste recycling facilities and in turn reducing disposal costs to the company. He monitored and mapped water usage at the Barrington facility to assist in water budgeting. This information was then used in the planning of a proposed new facility. Bill also created an Emergency Response Contingency Plan for the Barrington facility.

- Wastewater reduction project will save $40,000 - $50,000 annually in disposal costs.

Worthen Industries - Nashua, NH – ***Nicholas Brock***
Worthen Industries is a multinational group of companies, involved in the development and manufacture of adhesives, coatings and laminated products for a wide spectrum of industries. Worthen employed Nicholas as an intern to draft a Storm Water Pollution Prevention Plan (SWPPP) for one facility and file for an exemption for another. He was responsible for updating storm water BMPs around both facilities and assisted with chemical storage tank maintenance. Nick undertook a waste exposure prevention/response plan to various sources of water surrounding chemical holding tanks. His analysis resulted in maintenance on various existing structures to improve water flow to designated areas at the facilities.

EPA – Boston, MA- ***Brian McConell***
One of the EPA's Energy and Climate Unit's focus areas is the connection between energy and water/ wastewater. Since 2007, the Energy and Climate Unit has provided outreach, benchmarking, and technical guidance to many water and wastewater treatment facilities in New England (Region 1). Brian's objective was to track the program's successes in energy efficiency at water and wastewater treatment facilities and summarize the progress Region 1 has made during the past 5 years.

EPA – Boston, MA – ***Gina Chaput***
Gina participated in a review of scientific and engineering reports and data to evaluate options and feasibility for nitrogen management at EPA. This project included analysis of data from previous nutrient studies in coastal waters using statistical, spreadsheet, and graphical tools (such as GIS). In addition, Gina was be able to go out into the field and take measurements of nitrogen and other water quality parameters in coordination with EPA research laboratory efforts, and participate in coastal studies on one of EPA's research vessels.